

**REMARKS AND ARGUMENTS**

Claims 20, 22-31, 33, 36, 41-47 are pending in the present application. Claims 20, 27-31 and 41 have been amended without prejudice and without acquiescence. Support for the claim amendments can be found in the original pending claims and throughout the Specification, for example, page 2, lines 7-10 and lines 12-13. Claims 21, 32, 34-35 and 37-40 have been canceled without prejudice and without acquiescence. Applicants retain the right to file a continuation application on any canceled subject matter. Claims 42-47 have been added. Support for Claims 42-47 can be found in the original pending claims and throughout the Specification, for example, page 6, lines 8-18. No new matter has been added.

The issues outstanding in this application are as follows:

- Claims 29 and 30 are objected to because of informalities;
- Claims 20-24, 26, and 29-40 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Kellogg et al. (US Patent 6,143,248);
- Claim 25 was allegedly rejected under 35 U.S.C. § 103(a) as being unpatentable over Kellogg et al;
- Claims 27-28 and 41 were allegedly rejected under 35 U.S.C. § 103(a) as being unpatentable over Kellogg et al., in view of Sheppard, Jr. et al., (US 6,142,247).

Applicants respectfully traverse the outstanding rejections, and Applicants respectfully request reconsideration and withdrawal thereof in light of the amendments and remarks contained herein.

I. Claim Objections

Claims 29 and 30 are objected to because of informalities. Applicants respectfully traverse.

In order to advance the prosecution of this application, Applicants have amended claim 29 and 30 as requested by the Examiner without prejudice. In light of this amendment, Applicants request the objection to be withdrawn.

## II. 35 U.S.C. § 102(e)

Claims 20-24, 26, and 29-40 are rejected under 35 U.S.C. § 102(e) as being anticipated by Kellogg et al. (US Patent 6,143,248). Applicants respectfully traverse.

Anticipation of a claim is only established where “each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegel Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Without agreeing to the substance of the Examiner’s rejection and in order to advance the prosecution of the present invention, Applicants have amended independent claims 20 and 31 without prejudice and without acquiescence. Amended claims 20 and 31 require hydrophilic pathways and a hydrophobic section within a hydrophilic pathway. Kellogg et al. teach a hydrophilic fluid reservoir that is connected to a tube or channel that is entirely hydrophobic (See col. 29, lns. 20-28 and Figure 9). The valving action occurs at the junction of the reservoir and channel or tube (See col. 7, lns. 1-5). Since Kellogg et al. does not teach hydrophilic pathways and a hydrophobic section within a hydrophilic pathway, i.e., valving within a pathway, Kellogg et al. does not anticipate amended independent claims 20 and 31.

Accordingly, Applicants respectfully submit reconsideration and withdrawal of the outstanding rejection under 35 U.S.C. § 102(e) as being anticipated by Kellogg et al.

## III. 35 U.S.C. § 103(a)

## A. Claim 25

Claim 25 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kellogg et al. Applicants respectfully traverse.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

In order to advance the prosecution of the present invention, Applicants have amended independent claim 20 without prejudice and without acquiescence. Currently amended claim 20 requires hydrophilic pathways and a hydrophobic section within a

hydrophilic pathway. Kellogg et al. teach a hydrophilic fluid reservoir that is connected to a tube or channel that is entirely hydrophobic (See col. 29, lns. 20-28 and Figure 9). The valving action occurs at the junction of the reservoir and channel or tube (See col. 7, lns. 1-5). Thus, Kellogg et al. does not teach nor suggest valving within a pathway having a hydrophobic section within a hydrophilic pathway. Since Kellogg et al. does not teach nor suggest all the limitations of independent claim 20, Applicants assert that this rejection is moot and dependent claim 25 is non-obvious. (If an independent claim is non-obvious under 35 U.S.C. 103(a), than any claim depending therefrom is by definition non-obvious. *In re Fine*, 5 USPQ 2d 2596 (Fed. Cir. 1988)).

Having valves within pathways is a non-obvious and substantial departure from the teaching of Kellogg et al. For example, in the teaching of Kellogg et al., valves cannot be located within a channel since the entire channel is hydrophobic. Hence, a fluid sample can not partially enter a channel or tube, but rather, is stopped (valved) at the junction of the tube with a reservoir. For example, col. 6, ln. 66 through col. 7, ln. 6 explains that “[t]he second microchannel comprises a material that is not ‘wetable’ by the displacement fluid, so that fluid placed into contact with the first end of the capillary at the second fluid chamber does not flow into the microchannel unless centripetal force is applied to the fluid rotating the rotor on a platform...” (emphasis added).

In contrast, the present invention permits the location of a valve within a channel. This, for example, permits partial filling of a channel which may be used for metering defined volumes within a channel or for allowing a “plug” of solution to sequentially pass through a channel by sequentially stopping at a series of valves within the channel. The fact that the hydrophobic section is within a hydrophilic flow path means that once the liquid front has passed over the section it will enter a hydrophilic channel part that by itself will support further downstream transport of the liquid. Facilitated restarted downstream transport of metered liquid volumes is important within microfluidics.

Accordingly, Applicants respectfully submit reconsideration and withdrawal of the outstanding rejection under 35 U.S. C. 103(a) as being unpatentable over Kellogg et al.

## B. Claims 27-28 and 41

Claims 27-28 and 41 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kellogg et al., in view of Sheppard, Jr. et al., (US 6,142,247). Applicants respectfully traverse.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

In order to advance the prosecution of the present invention, Applicants have amended independent claim 31 without prejudice and without acquiescence. Currently amended claim 31 requires hydrophilic pathways and a hydrophobic section within a hydrophilic pathway. Kellogg et al. teach a hydrophilic fluid reservoir that is connected to a tube or channel that is entirely hydrophobic (See col. 29, lns. 20-28 and Figure 9). The valving action occurs at the junction of the reservoir and channel or tube (See col. 7, lns. 1-5). Thus, Kellogg et al. does not teach nor suggest valving within a pathway having a hydrophobic section within a hydrophilic pathway. Sheppard Jr. et al. also does not teach nor suggest hydrophilic pathways and a hydrophobic section within a hydrophilic pathway. Since neither Kellogg et al. nor Sheppard Jr. et al. either separately or in combination teach or suggest the limitations of independent claim 31, Applicants assert that this rejection is moot and dependent claims 27-28 and 41 are non-obvious. (If an independent claim is non-obvious under 35 U.S.C. 103(a), than any claim depending therefrom is by definition non-obvious. *In re Fine*, 5 USPQ 2d 2596 (Fed. Cir. 1988)).

Accordingly, Applicants respectfully submit reconsideration and withdrawal of the outstanding rejection under 35 U.S. C. 103(a) as being unpatentable over Kellogg et al. in view of Sheppard, Jr. et al.

### **CONCLUSION**

Claims 20, 22-31, 33, 36, 41-47 are pending in the present application. Claims 20, 27-31 and 41 have been amended without prejudice and without acquiescence and claims 21, 32, 34-35 and 37-40 have been canceled without prejudice and without acquiescence. Claims 42-47 have been added. No new matter has been added.

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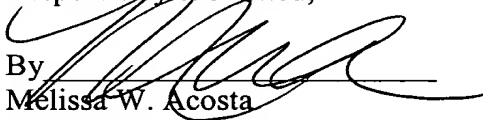
Docket No.: HO-P02191US0

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2375, under Order No. 10104200 from which the undersigned is authorized to draw.

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Respectfully submitted,

  
By  
Melissa W. Acosta

Registration No.: 45,872

FULBRIGHT & JAWORSKI L.L.P.

1301 McKinney, Suite 5100

Houston, Texas 77010-3095

(713) 651-5407

(713) 651-5246 (Fax)